IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

DOCUMENTS REQUIRED

From City Files: Site Specific Ordinance (PC, PI, PEU…) | Valley Master Plan
Approved Site Development Plan/Preliminary Plat | Flood Insurance Rate Map

Obtained by Developer and Submitted to City:	**MEETS STD.**	**ADD/ REVISE**	**N/A**	**COMMENTS**
1. Geotechnical Report	____	____	____	_____
2. Traffic Study	____	____	____	_____
3. MSD Comments/Approval	____	____	____	_____
4. St. Louis County Comments/Approval	____	____	____	_____
5. MoDOT Comments/Approval	____	____	____	_____
6. Fire District Comments/Approval	____	____	____	_____
7. Spirit of St. Louis Airport Comments/Approval	____	____	____	_____
8. Levee District Comments/Approval	____	____	____	_____
9. Div. of PDS Appv'd - Tree Surety/Preservation Plan	____	____	____	_____
NOTE: APPROVED TREE PRESERVATION PLAN TO BE INCLUDED IN IMPROVEMENT PLANS				
10. Floodplain Development Permit Application	____	____	____	_____
A. Engineer signed, sealed & dated application	____	____	____	_____
B. COE 404 permit or waiver	____	____	____	_____
C. MoDNR 401 permit	____	____	____	_____
D. LOMR submitted	____	____	____	_____
E. Lowest floor 1' above 100-yr flood	____	____	____	_____
Elevation Certificate required after construction of structure(s) ☐ **YES** ☐ **NO** (check one)				
11. Downstream Impoundment Preconstruction Survey	____	____	____	_____
12. Downstream Impoundment Preconstruction Bond	____	____	____	_____
13. Special Inspector req'd for SWPPP inspections	____	____	____	_____
A. Special Inspector certified by St. Louis County	____	____	____	_____
14. Location of borrow or fill site	____	____	____	_____
15. Grading permit for borrow or fill site	____	____	____	_____
16. Haul route	____	____	____	_____
A. Pavement repair bond for City streets	____	____	____	_____
B. Video record of City streets along haul route	____	____	____	_____
17. Insurance Certificate for work on City R/W (see pg. 17)	____	____	____	_____
18. Special Use Permit (County)	____	____	____	_____
19. Entrance/Construction Permit (MoDOT)	____	____	____	_____
20. Easements/Agreements for Off-Site Improvements/Grading/Ponding/Deten. Maint. (Executed and Recorded, if applicable - property owner must be notified prior to starting work)	____	____	____	_____
21. Recorded copy of any required cross access easement, right of way or other dedication on site	____	____	____	_____

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

DOCUMENTS REQUIRED continued

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
22. Escrow Quantities				
23. Inspection Fees				
24. Surety and Deposit Agreement provided ($1,500 min.) If $10,000 or less then surety must be in cash/check.				
25. Forward Funding Reimbursement *(prior to MZA approval)*				
26. Wetland Mitigation				

PLAN REQUIREMENTS – TITLE SHEET AND SITE PLAN

TITLE SHEET	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
1. Sheet Size 24" x 36"				
2. Adequate Location Map				
3. Site Address or Locator Number(s)				
4. Developer's Name, Address, & Phone #				
5. Engineering Firm's Name, Address, & Phone #				
6. Subdivision/Project Name				
7. Registered PE's Seal, Signature & Date (ALL PAGES)				
8. Geotechnical Engineer's Statement of Compliance With Seal, Signature & Date				
9. Property Owner/Developer's certification				
1. Executed certification stating the following: "The Property Owner/Developer hereby certifies that he is familiar with the SWPPP and assumes full responsibility for the performance and maintenance of the SWPPP as stated on the approved plans. He will ensure that all contractors understand and are familiar with the SWPPP for the site and that each contractor agrees to implement and protect elements of the SWPPP as they relate to his work. The Property Owner's/Developer's onsite representative shall be responsible for the performance and maintenance of the SWPPP. In addition, the undersigned Owner/Developer assures that all City property or roads will be adequately protected."				
2. Developer's contact person and phone #				
3. Emergency contact and phone #				

SITE PLAN

1. North Arrow & Graphic Scale				
2. Adjoining Property Owners				
3. Distance to Nearest Intersecting Street (if within 200' of an intersection all approaches to the intersection need to be shown)				
4. Right of Way Dedication(s)				
5. Right of Way Improvements				
A. Street				
B. Sidewalk				
C. Drainage				

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – SITE PLAN (CONT.)

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
6. Off-site Improvements and Easements (sanitary/storm sewers, detention, grading, cross access easements and street improvements)	____	____	____	_____
7. Compliance with Approved Site Development Plan	____	____	____	_____
A. Lot Layout	____	____	____	_____
B. Street Layout/parking lot internal circulation	____	____	____	_____
C. Retaining Wall(s)/Structure(s)	____	____	____	_____
D. Limits of Tree Removal – w/ limits from approved Tree Preservation Plan shown	____	____	____	_____
E. Other Improvements	____	____	____	_____
F. Common Ground Dedication	____	____	____	_____
8. Pavement Layout				
A. Labeled as Public or Private	____	____	____	_____
1. Note Regarding Maintenance, if Private	____	____	____	_____
2. Sign at Entrance, if Private Maintenance	____	____	____	_____
B. Widths labeled (incl. transition locations)	____	____	____	_____
C. Horizontal Curve Information	____	____	____	_____
1. Delta, R, L, and T noted	____	____	____	_____
2. Station of PC and PT	____	____	____	_____
D. Curb Return Radii Labeled (32' min.)	____	____	____	_____
E. Temporary Turnarounds for Stub Streets > 450 ft.	____	____	____	_____
F. Sign at Entrance and End of Stub Street	____	____	____	_____
9. Sidewalk Layout	____	____	____	_____
A. Through Islands in Addition to Around Eyebrow	____	____	____	_____
B. Widths Labeled	____	____	____	_____
C. Handicap Ramp Locations Shown	____	____	____	_____
10. Storm Sewer Layout	____	____	____	_____
A. Double Curb Inlet at Low Point Cul-de-sacs	____	____	____	_____
B. Underdrain at all Curb Inlets (full pav't width)	____	____	____	_____
C. 100 Year Ponding Limits with Elevation	____	____	____	_____
D. 100 Year Overflow Path	____	____	____	_____
E. All Swales Labeled	____	____	____	_____
F. Easements (Existing and Proposed), incl. Book and Page for existing easements	____	____	____	_____
G. Outlet Extended Past Sanitary Sewer, if in Vicinity	____	____	____	_____

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – SITE PLAN (CONT.)

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
11. Detention/Retention Basin(s) Layout	____	____	____	_____
A. 30' Horizontal/2' Vertical Offset to Nearest Bldg./ Opening from 100 Yr. Highwater Noted/Depicted	____	____	____	_____
B. 2 Year High Water Location and Elevation	____	____	____	_____
C. 100 Year High Water Location and Elevation	____	____	____	_____
D. Maintenance Easements	____	____	____	_____
E. 20' wide clear access path for maintenance	____	____	____	_____
12. General Easements- 10' total every other lot line, 15' total continuous rear yard	____	____	____	_____
13. Sanitary Sewer Layout and Easements	____	____	____	_____
14. Street Signs (Name/No Parking/Private St. etc.) Labeled	____	____	____	_____
15. End of Pavement Markers Labeled	____	____	____	_____
16. Street Light Req'ts noted, 325' max. spacing typical	____	____	____	_____
17. Street Tree Requirements Noted	____	____	____	_____
18. Req'd Front & Side Yard Bldg. Setback Lines Shown/Labeled	____	____	____	_____
19. All Existing Easements Labeled, incl. Book & Page	____	____	____	_____
20. All Common Ground Labeled and Accessible (No Curb Inlets Blocking Access)	____	____	____	_____
21. Steep Street Grade Note (Prior Approval Req'd)	____	____	____	_____
22. Conduits for future electrical and water services to islands and medians (per Ord. 1724)	____	____	____	_____

Additional Comments_____

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – GRADING

CLEARING/GRADING PLAN

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
1. Topographic plan showing existing and proposed contours of the site and adjoining off-site strips based on U.S.G.S. datum.				
2. Plan showing the location of the clearing/grading, structures, retaining walls, etc.				
3. North arrow and graphic scale				
4. Benchmarks				
A. Based on U.S.G.S. datum				
B. Temporary 'Site' benchmark				
5. Existing trees to be saved and/or removed indicated				
A. Corresponds with approved Tree Preservation Plan				
B. Corresponds w/Site Development Plan/Prelim. Plat				
6. Natural Watercourse Protection				
A. Top of Bank delineated				
B. Buffer Area Delineated **50' from Top of Bank for Bonhomme, Caulks and Creve Coeur Creeks - 25' for all others (blue line on USGS Quad Map)**				
7. Total area of site (acres)				
8. Estimated area to be disturbed (acres)				
9. Estimated tree area to be cleared (acres)				
10. Grading quantities				
11. Finish floor elevations of existing/proposed buildings				
12. 100 Year floodplain and floodway delineated				
13. Slopes to be no steeper than 3:1				
14. Off-site grading easement (show on plan and provide actual agreement) **{NOTIFY PROPERTY OWNER PRIOR TO STARTING WORK}**				
15. Positive drainage provided (2% min. slope in grassed swales, 1% min. slope other grassed areas)				
16. Call out swales on top of retaining walls. (**NO IMPLIED APPROVAL OF WALL CONSTRUCTION. ZONING AUTHORIZATION REQUIRED FROM PLANNING & DEVELOPMENT SERVICES DIVISION.**)				

Additional Comments_____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – GRADING (CONT.)

MANDATORY NOTES

(The following notes are required regardless of the SWPPP)

	MEETS STD.	ADD/ REVISE
1. Notify the City of Chesterfield Planning & Development Services Division (636-537-4761) 48 hours prior to the commencement of grading and/or prior to the commencement of construction.	____	____
2. Parking on non-surfaced areas is prohibited in order to eliminate the condition whereby mud from construction and employee vehicles is tracked onto the pavement.	____	____
3. The streets surrounding this development and any street used for construction access thereto shall be kept free from mud and construction debris and shall be cleaned throughout the day.	____	____
4. All fills placed under proposed storm and sanitary sewer lines and/or paved areas, including trench backfills within and off the road right-of-way, shall be compacted to 90% of maximum density as determined by the "Modified AASHTO T-180Compaction Test" (ASTM D-1557) for the entire depth of the fill. Compacted granular backfill is required in all trench excavation within the street right-of-way and under all paved areas. All tests shall be performed under the direction of and verified by a licensed engineer concurrent with grading and backfilling operations.	____	____
5. Soft soils or sediment from existing or former pond sites or tributaries, or any sediment basins or traps shall not be placed in proposed public right-of-way locations or in any storm sewer location.	____	____
6. All trash and debris on-site, either existing or from construction, shall be removed and properly disposed of off-site.	____	____
7. Debris and foundation material from any structure which is scheduled to be razed shall be properly disposed of off-site.	____	____
8. Any wells or cisterns shall be located and sealed in a manner acceptable to the City of Chesterfield and the MoDNR.	____	____
9. All excavations, cuts or fills shall have a finished grade not to exceed a 3:1 slope (33%), unless specifically approved otherwise.	____	____
10. No excavation shall be made in a manner that may endanger any adjoining property or any public or private street, or utility.	____	____
11. All developed lots shall be seeded and mulched or sodded before occupancy and in a manner that it meets or exceeds the requirements of the City of Chesterfield's "Sediment & Erosion Control Guidelines."	____	____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

GENERAL PRINCIPLES OF STORMWATER POLLUTION PREVENTION

These are not general notes to be included on the plans; these are the guidelines used to determine the adequacy of the proposed Stormwater Pollution Prevention Plan (SWPPP).

1. Protect the Land Surface (minimize erosion) and Protect Existing Facilities
   Clearing minimized. Clearing/Grubbing/grading scheduled/phased to minimize bare soil areas and time of exposure. Stormwater diverted away from the bare soil and steep slopes. Drainage ways stabilized. Existing stormwater facilities and water ways protected.

2. Sequence of Work
   Key sediment control measures installed prior to clearing/grading. Clearing/Grading sequence coordinated with the installation of erosion/sediment control measures to most effectively control **erosion**. Exposed areas protected ASAP.

3. Keep Runoff Velocities Low
   Natural vegetation preserved where possible. BMP's that shorten or "break" flows utilized to reduce flow velocities.

4. Capture Sediment on the Site as Final Measure
   Stormwater conveyed to stable outlet and water detained in intermediate sediment traps and sediment basin before leaving the site. Silt barriers installed at borders of disturbed area and where water flows onto streets. Secondary levels of protection by utilizing multiple devices are more desirable than single large sediment basins.

5. Non-Sediment Pollution Prevention
   Construction site wastes managed, plans for spill prevention and control, personnel aware of requirements.

NOTE: All requirements of the SWPPP, including details, shall be on a separate plan sheet(s) within the set of Improvement Plans, unless a separate SWPPP document is provided. A separate SWPPP may be required for complex or large sites.

	YES	NO
SWPPP required as a formal document separate from the Improvement Plans	☐	☐

Additional Comments _____

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS - STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
Item 1 only required if SWPPP is stand alone document				
1. Site Description	____	____	____	_____
A. Owner's name, address & phone #	____	____	____	_____
B. Developer's name, address & phone #	____	____	____	_____
C. Engineer's name, address & phone #	____	____	____	_____
D. Engineer's seal, signature & date (ALL PAGES)	____	____	____	_____
E. Property address	____	____	____	_____
F. Location map	____	____	____	_____
G. Site area (Acres)	____	____	____	_____
H. Site benchmark based on USGS datum	____	____	____	_____
I. Property Owner/Developer's certification				
1. Executed certification stating the following: "The Property Owner/Developer hereby certifies that he is familiar with the SWPPP and assumes full responsibility for the performance and maintenance of the SWPPP as stated on the approved plans. He will ensure that all contractors understand and are familiar with the SWPPP for the site and that each contractor agrees to implement and protect elements of the SWPPP as they relate to his work. The Property Owner's/Developer's onsite representative shall be responsible for the performance and maintenance of the SWPPP. In addition, the undersigned Owner/Developer assures that all City property or roads will be adequately protected."	____	____	____	_____
2. Developer's contact person and phone #	____	____	____	_____
3. Emergency contact and phone #	____	____	____	_____
2. Description of Best Management Practices (BMP)	____	____	____	_____
(Sample details are available for reference. Straw bales are not to be used in the City of Chesterfield.)				
A. Location of BMP installation	____	____	____	_____
B. Physical description/detail of BMP	____	____	____	_____
C. BMP installation/construction procedures	____	____	____	_____
D. O&M procedures for each BMP	____	____	____	_____

Additional Comments_____

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS - STORMWATER POLLUTION PREVENTION PLAN (SWPPP) (CONT.)

3. Erosion and sediment control plans	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
A. Key map dividing site into labeled Work Areas				
B. Overall sequencing of the work by Work Area Including estimated duration				
1. Clearing				
2. Rough grading				
3. Construction of public improvements - Roads, sewers, retaining walls, & utilities				
4. Final grading				
5. Landscaping				
C. Individual Work Area plan(s)				
1. Delineation of area to be disturbed				
2. Estimated grading quantity per Work Area				
3. Itemized list construction activities per Work Area				
4. Sequence of BMPs to be installed or removed				
5. Drainage plan designed to safely handle surface water, during the 15-yr, 20-min. storm including drainage area listing an A, P.I., Q for each area				
6. Location utilities within 50' of area to be disturbed				
7. Contours (2' interval max.)				
i. Existing grades				
ii. Interim grades				
iii. Final grades				
8. 100 year floodplain and floodway delineated				
9. Note describing soil preparation and revegetation of finished grade				
10. Plan for handling sediment removed during maintenance of BMPs				
11. Unvegetated open channels, runoff velocity 2 ft/sec or less				
12. Stabilized channels, runoff velocity 2 – 5 ft/sec.				
13. Adjoining sites protected				
14. Runoff from upstream sites diverted appropriately				
15.Improvements ≥25', 50' from natural watercourse				

Additional Comments _____

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS - STORMWATER POLLUTION PREVENTION PLAN (SWPPP) (CONT.)

3. Erosion and sediment control plans (cont.)	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
D. Overall drainage plan incorporating overflows etc. to safely handle a 25% increase in peak flow from the 15-yr., 20-min. storm. No adverse impact to downstream properties.				
E. Work plan for typical lot during residential construction				
F. Surplus erosion & siltation control devices for emergency repair–req'd quantities summarized by phase (Min. of 10% of concurrent phase quantities)				
G. Location and present status of any previously permitted grading operations on the property				
H. Construction entrances depicted				
I. Construction parking depicted & minimum number of parking spaces provided (based on development; see BMP detail)				
J. Construction washdown areas depicted				
K. Proposed truck and equipment access ways to/within the work site				
L. Location of any downstream impoundments which could be affected by the proposed grading				
M. Plan for responding to any loss or sediment off-site				
N. Non-sediment pollution control				
1. Waste Management BMP's				
2. Hazmat BMP's				
3. Spill prevention and control BMP's				
4. Temporary Sanitary Facilities				

Additional Comments_____

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – GENERAL NOTES TO BE ADDRESSED BY THE SWPPP

The following notes should be included as part of the SWPPP. However, the requirements given for the BMP's may exceed the requirements below. Duplicate or conflicting notes shall be avoided.

	MEETS STD.	ADD/ REVISE	N/A
1. Erosion and siltation control shall be installed prior to any grading and be maintained throughout the project until adequate vegetative growth insures no further erosion of the soil and work is acceptable to the owner and/or controlling regulatory agency.	____	____	____
2. At least once every week and after every rainfall event of 0.25 inches or more, erosion and siltation control devices shall be inspected for damage and amount of sedimentation accumulated and corrective actions taken. Reports of these inspections and corrective actions shall be prepared on the forms provided by the City and submitted to the Planning & Development Services Division within 5 days of the inspection.	____	____	____
3. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.	____	____	____
4. Where natural vegetation is removed during grading, vegetation shall be reestablished as soon as possible in such a density as to prevent erosion.	____	____	____
5. When grading operations are completed or will be suspended for more than 5 days in any area, the disturbed area shall be seeded or otherwise stabilized to significantly reduce the erodibility of the soil. Protective measures may include a combination of seeding, sodding, mulching or other suitable means to protect the ground surface from erosion.	____	____	____
6. If cut and fill operations occur during a season not favorable for immediate establishment of permanent ground cover, temporary ground cover shall be utilized to retard erosion.	____	____	____
7. All finished grades (areas not to be disturbed by future improvement) in excess of 20% slopes (5:1) shall be seeded, mulched and tacked at the rate of 100 pounds per 1,000 square feet immediately after final placement.	____	____	____
8. Storm water pipes, outlets and channels shall be protected by silt barriers and kept free of waste and silt at all times prior to final surface stabilization and/or paving.	____	____	____

Additional Comments _____

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – STREET PROFILES

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
1. Street Name(s)				
2. Existing Ground Profile				
3. Proposed Centerline Profile				
4. Stationing & Elevations @ 50' or 25' Intervals				
5. Vertical & Horizontal Scale				
6. Low Point(s) & High Point(s) Station & Elevation				
7. Min/Max Profile Grade				
A. All Slopes 2% - 6% w/o Steep Grade Approval				
B. Max. Slope Complies with Approval Where Given				
C. 4% Max. entering cul-de-sacs				
8. Vertical Curve Information				
A. PVI Station & Elevation				
B. PVT Station & Elevation				
C. PVC Station & Elevation				
D. Length of Curve				
E. "K" Value (25 min. - 25 mph)				
F. Mid-Ordinate				
9. Storm Sewer Crossings Labeled				
10. Existing Underground Utility Crossings Labeled				
11. Street Intersections (station & elevation)				
12. Pavement Lugs (on steep grades & w/ trench drains)				

Additional Comments_____

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – SEWER PROFILES AND DRAINAGE AREA MAP

STORM SEWER PROFILES	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
1. Existing & Proposed Storm Sewer Profile				
2. Existing & Proposed Ground Profile (incl. pav't.)				
3. Vertical and Horizontal Scale				
4. Storm Structure Numbers, Flowlines & Top Elevations				
5. Station & Offset of Structures Adjacent to Pavement				
6. Number & Direction of Open Sides for all Area Inlets				
7. Reach Lengths, Slope, Size of Pipe, & Type of Pipe				
8. All Pipes Class III RCP min. (Public only)				
9. Radius Pipe Labeled				
10. Detention Facilities, incl. 2 & 100 Year High Water				
11. Existing Underground Utilities (flowline or top elev's)				
12. Proposed Sanitary Sewer Crossings				
13. Pavement Underdrains Labeled				
14. Full Depth Granular Fill Under All Right-of-Way and Adjacent Paved Areas (Sidewalks, etc.)				
15. Calculated Hydraulic Grade Line Labeled				
16. HGL > 2' below Inlet Sill or Top of Manhole				
17. All Sewer Removals and Connections Labeled				
18. 100-Year Floodplain Elevation				
19. Concrete Cradles (for 20% slopes or greater)				
20. Rip-Rap or Other Energy Dissipaters				
21. Channel Lining as Required				
SANITARY SEWER PROFILES				
Full Depth Granular Fill Under All Right-of-Way and Adjacent Paved Areas (Sidewalks, etc.)				
DRAINAGE AREA MAP				
1. Corresponds with Site Plan/Grading Plan				
2. On-site Drainage Area Map (including the entire site even if not being improved and/or draining to the detention basin)				
3. Off-Site Drainage Area Map				
4. A, PI and Q Labeled for each Area				
5. Corresponds with Calculations				
6. Any Runoff Bypassing Detention Accounted for				
7. Any Runoff Bypassing Inlets Accounted for downstream				

Additional Comments _____

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

STORMWATER RUNOFF CALCULATIONS AND DETENTION BASIN DESIGN

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
1. Registered P.E.'s Seal, Signature & Date				
A. Runoff Calcs				
B. Inlet Capacities (design with 40% blockage factor at low points)				
C. Pipe Capacities				
D. Hydraulic Grade Lines				
E. Detention Calcs				
2. Project in the Valley – Valley Master Plan Improvements shown (no detention required)				
3. Basin Max. Ponding No Closer Than 30' Horizontally to Any Building				
4. 1' of Freeboard for 100 Yr. Highwater or Exit Pipe Sized for Undetained Flow				
5. Calculations Meet or Exceed Current Criteria				
6. Low Elevation of Basin > 15 Year HGL Downstream				
7. Actual Outlet Velocity				
A. Less than 5 fps				
B. Design of Rip-Rap/Energy Dissipater				
C. Analysis of Need for Add'l Channel Treatment				
8. Detention/Retention Basin Routing Calculations for Developed vs. Undeveloped Condition				
9. 4' Fencing Around Perimeter of Basin if Side Slopes Exceed 3:1				
10. Retention Basin				
A. Water Fluctuation <= 3'				
B. Flowlines of Pipes into Basin > Normal Pool Elev.				

Additional Comments_____

IMPROVEMENT PLAN CHECKLIST **PROJECT:** _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS - DETAILS

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
1. St. Louis County Standard Details				
2. MSD Standard Details				
3. Typical Section(s)				
A. 7" P.C. Concrete over 4" Type 1 Aggregate Base over Non-woven Fabric* over Prepared Subgrade				
B. 7.5" Type "X" Asphaltic Concrete with 2" Type "C" Asphaltic Concrete over 4" Type 1 Agg. Base over Non-woven Fabric* over Prepared Subgrade				
C. 2% Cross Slope				
D. 3" Rolled Curb or Acceptable Vertical Curb				
E. 4" Thick P.C. Concrete Sidewalk (and Note re: 6" thick in driveways continued 4' beyond each)				
F. 4' or 5' Wide Sidewalk (Check Ordinance)				
G. Right of Way, Easements and Pavement Widths Labeled				
4. Collector/Industrial Street Pavement Design as Required by the Department.				
5. Cul-de-sac, Eyebrow, etc. Warping Details				
6. Temporary Turn-Around Detail				
7. Entrance Details (Residential & Commercial)				
8. Underdrain Detail (Depth Shown at Greater of 12" Inlet Sill or at Flowline of Cross Road Pipe)				
9. Handicap Ramp Details				
10. Rip-Rap Details (geotech fabric between rip-rap and subgrade, and adequate material)				
11. Guard Rail Detail				
12. Sewer Penetration Through Retaining Wall Detail (grade beams)				
13. End of Pavement Marker Detail				
14. Street Sign Details, also private street and stub street notification signs. Show location & installation				
15. Typical Swale Cross-Section & Flow Calculations (4 cfs Max.)				
16. Detention Basin Outfall Structure Detail				
17. Typical Retaining Wall Detail				

* - Fabric under street must comply with AASHTTO M288-96 for separation purposes. Non-woven fabrics, with survivability class two (2) and a minimum permitivity of 0.02, such as Amoco 4552, TYPAR3501, Carthage Mills FX-60-HS, Mirafi 160N or pre-approved equal.

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

PLAN REQUIREMENTS – DETAILS (CONT.)

	MEETS STD.	ADD/ REVISE	N/A	COMMENTS
18. 4" UL grade conduit for electrical service to islands/ medians, min. 2' below grade, extend 1' beyond curbs, mark ends for future locates (may be labeled/ noted on site plan)	____	____	____	_____
19. 6" PVC conduit for water service to islands/medians min. 3' below subgrade, extend 1' beyond curbs, mark ends for future locates (may be labeled/noted on site plan)	____	____	____	_____

Additional Comments_____

IMPROVEMENT PLAN CHECKLIST

PROJECT: _____

_____

Note: The "ADD/REVISE" column must be blank, or issues resolved, in order for the Improvement Plans to be approved.

INSURANCE REQUIREMENTS FOR WORK ON CITY RIGHT OF WAY

	MEETS STD.	ADD/ REVISE	N/A
A **certificate of insurance** stating the **"City of Chesterfield is an additional insured"** is required for work on City right of way**.** Indication of the City of Chesterfield as a "certificate holder" will not suffice.	____	____	____
The Contractor and his Subcontractors shall procure and maintain throughout the duration of work on City right of way, insurance of the types and minimum amounts as stated below:			
1. Worker's Compensation in full compliance with statutory requirements of Federal and State of Missouri Law and Employers' Liability coverage in the minimum amount of $500,000.00	____	____	
2. Comprehensive General Liability	____	____	
Bodily Injury, Including Death $ 500,000 each person	____	____	
$2,500,000 each occurrence	____	____	
Property Damage $2,500,000 each occurrence	____	____	
$2,500,000 aggregate	____	____	
3. Comprehensive Automobile Liability	____	____	
Bodily Injury, Including Death $ 500,000 each person	____	____	
$2,500,000 each occurrence	____	____	
Property Damage $2,500,000 each accident	____	____	

Additional Comments_____